

m. 248° (260° after cooling); with Ac2O XIII gives the O,N-di-Ac deriv., m. 258°; hydrolysis of any of the Ac derivs. gives naphtho-2,3,4',5'-imidazolone (XIV), brown, m. 393°; the Na salt is colorless; it could not be saponif. to 2,3-C10H6(NH2)2. XI and concd. NH4OH give 2-acetylamino-3-naphthoic amide, m. 240° (decompn.); the free NH2 deriv., yellow, m. 233°; with alk. NaOCl there results XIV. Heating the solid diazo compd. with 2 N HCl gives 4-hydroxy-(lin-naphtho-1,2,3-triazone) (XV), decompg. 250°; this also results from the above hydrazide and HNO2. XV and m-C6H4(OH)2 give a brick red azo dye.

IT  $\beta\beta$ -Naphthoxazole, 1-methyl-

IT 4671-67-4P,  $\beta\beta$ -Naphthotriazole-1-carbinol 106452-01-1P  $\beta\beta$ -Naphthotriazole, 1-methyl-

=> log y

STN INTERNATIONAL LOGOFF AT 15:38:23 ON 28 NOV 2006

=> d his

(FILE 'HOME' ENTERED AT 13:50:17 ON 28 NOV 2006)

FILE 'CA' ENTERED AT 13:50:29 ON 28 NOV 2006

L1 267 S TRIAZOL? AND FLUORESC? AND PH

L2 168 S L1 AND(MEI OR METHYL OR PROTON?)

L3 2 S L2 AND(NITRIC OR NITROGEN)(2A)(OXIDE OR MONOXIDE OR MONOOXIDE)

L4 59 S L1 AND(DETECT? OR DETERMIN? OR ANALY? OR MEASUR? OR MONITOR? OR ASSAY? OR TEST?)

L5 59 S L3-4

L6 40 S L5 AND PY<2001

=> d bib,ab l6 1-40

L6 ANSWER 5 OF 40 CA COPYRIGHT 2006 ACS on STN

AN 132:75526 CA

TI **Fluorescent** indicators for imaging nitric oxide production

AU Kojima, Hirotatsu; Urano, Yasuteru; Kikuchi, Kazuya; Higuchi, Tsunehiko; Hirata, Yasunobu; Nagano, Tetsuo

CS Graduate School of Pharmaceutical Sciences, The University of Tokyo, Tokyo, 113-0033, Japan

SO Angewandte Chemie, International Edition (1999), 38(21), 3209-3212

AB We have developed diaminofluoresceins (DAF5), such as DAF-2, as **fluorescent** indicators for NO. The DAFs react not with NO itself but with NO+ equiv., such as nitric anhydride (N2O3), which are formed by autoxidn. of NO. Under aerobic conditions, DAFs can trap NO to yield highly **fluorescent triazolofluoresceins** (DAF-T5) by nitrosation and dehydration. This mechanism is convenient because it does not interfere with signal transduction. Under physiol. conditions, DAF-Ts are not formed in the absence of NO, which is why DAFs can be used for direct **detection** of NO produced by cells. However, during the application of DAF-2 for NO imaging in vascular endothelial cells, we encountered the problem of **pH** dependency of the **fluorescence** intensity of DAF-Ts, which makes it difficult to **monitor** small changes in intracellular NO levels after a stimulus that shifts the intracellular **pH** level. We synthesized dichloro derivs. of DAF (DAF-4, DAF-5, and DAF-6). It was reported that fluorinated **fluorescein** derivs. are more resistant to photobleaching

than **fluorescein** and can be efficiently excited with the 488-nm spectral line of the argon-ion laser used in confocal laser scanning microscopes. Therefore, we prepd. DAF-FM, in which the chlorine atoms of DAF-4 M2 are replaced by fluorine atoms. We suggest that DAF-FM is a useful tool for visualizing the temporal and spatial distribution of intracellular NO.

L6 ANSWER 6 OF 40 CA COPYRIGHT 2006 ACS on STN

AN 130:95553 CA

TI Preparation of diaminorhodamine derivatives as **fluorescent** indicators for **determination** of carbon monoxide

IN Nagano, Tetsuo; Kojima, Hirotsu

PA Japan

SO PCT Int. Appl., 31 pp.

PI	WO 9901447	A1	19990114	WO 1998-JP2924	19980630
	CA 2295880	AA	19990114	CA 1998-2295880	19980630
	US 6201134	B1	20010313	US 2000-446899	20000403

PRAI JP 1997-177097 A 19970702

AB Claimed are compds. represented by general formula (I; wherein R1 and R2 are amino groups bonded to the Ph ring at positions adjacent to each other; R3, R4, R5 and R6 are each independently C1-C6 alkyl; R7, R8, R9 and R10 are each independently hydrogen, C1-C6 alkyl, allyl or halogeno; R11 is hydrogen or C1-C18 alkyl; and X- is an anion), and reagents contg. the same for **detg.** nitrogen monoxide. The compds. react with nitrogen monoxide efficiently to produce **fluorescent triazole** compds. which emit intensive **fluorescence** when irradiated with a long-wavelength excitation light. The **fluorescent** compds. are **detectable** in a **fluorescence** region wherein little influence of autofluorescence of cells is obsd., and characterized in that the intensity of **fluorescence** is not lowered even under acid conditions. Thus, 3-acetamido-4-nitroxylylene was dissolved in hot water contg. MgSO4, treated portionwise with 6 equiv of K2MnO4, and refluxed until the purple color is discolored. The reaction mixt. was filtered while it was hot and the filtrate was acidified with concd. HCl to give 3-acetamido-4-nitrophthalic acid, which was treated with acetyl chloride to give 3-acetamido-4-nitrophthalic anhydride. The latter compd. was dissolved in xylene with warming to temp. slightly lower than the refluxing temp., followed by adding dropwise N,N-diethylaminophenol over 30 min, and the resulting mixt. was refluxed for 18 h to give [9-(2-carboxy-3-amino-4-nitrophenyl)-6-diethylamino-3H-xanthen-3-ylidene]diethyliminium, which was deacetylated by refluxing in concd. HCl and reduced by Na2S and NaSH in H2O to give [9-(2-carboxy-3,4-diaminophenyl)-6-diethylamino-3H-xanthen-3-ylidene]diethyliminium (II). II was dissolved in MeOH, into which NO(g) was blown to give [9-(7-carboxybenzotriazol-6-yl)-6-(diethylamino)-3H-xanthen-3-ylidene]diethyliminium (III) which showed max. wavelength of Ex 565 nm for excitation spectrum and Em 580 nm for **fluorescence** spectrum. When a soln. of II in a phosphate buffer (pH 7.4) was treated with a various concn. (0.11-0.64  $\mu$ M) of NO and the **fluorescence** spectrum was **measured**, the intensity of max. **fluorescence** wavelength increased owing to the **triazole** III formed in the reaction system. The sensitivity of II did not change in weakly acidic range from neutral to  $\square$ pH 4.

L6 ANSWER 8 OF 40 CA COPYRIGHT 2006 ACS on STN

AN 127:119178 CA  
 TI Intensity-independent fluorometric **detection** of cellular **nitric oxide** release  
 AU Andrew, Penelope J.; Auer, Manfred; Lindley, Ivan J. D.; Kauffmann, Harald F.; Kungl, Andreas J.  
 CS Novartis Forschungsinstitut, Department Immunodermatology, Brunnerstrasse 59, Vienna, A-1235, Austria  
 SO FEBS Letters (1997), 408(3), 319-323  
 AB A new **fluorescence** method is introduced in which **nitric oxide** (NO)-derived higher-order oxygen complexes (NOx) are quantified at **physiol. pH**. **Detecting** the **fluorescence** lifetime shift between 2,3-diaminonaphthalene and the NOx-derived **protonated** 2,3-naphthotriazole allows an intensity independent **detn.** of the NOx concn. The NO release from LPS and IFN $\gamma$ -stimulated murine macrophages and iNOS transfected hamster cells was quantified. The lower **detection** limit for NO $_2^-$  was 800 pmol/mL. Since the influence of static **fluorescence** quenching due to cellular components can be neglected, the method is applicable for clear cellular supernatants as well as turbid cellular suspensions.

L6 ANSWER 9 OF 40 CA COPYRIGHT 2006 ACS on STN  
 AN 123:106981 CA  
 TI Fluorometric **determination** of nitric oxide  
 AU Miles, Allen M.; Chen, Yan; Owens, Michael W.; Grisham, Matthew B.  
 CS Dep. Physiology and Biophysics, LSU Med. Cent., Shreveport, LA, 71130, USA  
 SO Methods (San Diego) (1995), 7(1), 40-7  
 AB A variety of different spectrophotometric methods have been developed to quantify nitric oxide (NO)-derived metabolites such as nitrate and nitrite. Some of these methods **measure** the formation of colored complexes such as azo dyes (e.g., Griess reaction), where as other methods **measure** the formation of fluorometric compds. Virtually all of these methods require the rapid and spontaneous decompn. of NO in the presence of mol. oxygen to yield potent N-nitrosating agents which ultimately N-nitrosate the various **detector** compds. The N-nitrosation of 2,3-diaminonaphthalene (DAN) to yield the highly **fluorescent** 2,3-naphthotriazole offers the advantages of specificity, sensitivity, and versatility. This **assay** is capable of **detecting** as little as 10-30 nM (10-30 picomol/mL) of NO and may be used to quantify NO generated in a **physiol. relevant environment** (e.g., neutral **pH**) with minimal interference due to nitrite decompn. The trapping efficiency of DAN for NO is approx. 80% and the enhanced sensitivity of this **assay** provides a valuable method for the **detn.** of small amts. of NO. This chapter details the spectrofluorometric methods used in our lab. to quantify NO generated by several different NO-releasing compds. and by a variety of different cell types in culture. In addn., we describe how this method may be modified to quantify nitrite and nitrate, the stable decompn. products of NO oxidn. in aq. soln.

=> log y

=> d his

(FILE 'HOME' ENTERED AT 11:11:51 ON 28 NOV 2006)

FILE 'REGISTRY' ENTERED AT 11:12:09 ON 28 NOV 2006

L1 6462 S XANTHYLIUM AND PHENYL?

L2 1 S NITRIC OXIDE/CN

FILE 'CA' ENTERED AT 11:32:37 ON 28 NOV 2006

L3 106 S (L1 OR RHODAMINE)AND(L2 OR NITRIC OXIDE OR NITROGEN MONOXIDE)

=> d bib,ab 115 1-106

L3 ANSWER 38 OF 106 CA COPYRIGHT 2006 ACS on STN

AN 136:201757 CA

TI Rhodamine fluorophores - functional applications

AU Sekar, N.

CS Dyes Division, UDCT Matunga, Mumbai, 400 019, India

SO Colourage (2001), 48(7), 50-52

AB A review, with refs., on developments in the area of rhodamine fluorescent dyes with emphasis on their use as fluorescent chemodosimeters, as nitric oxide detectors, as laser dyes, and in oligonucleotide labeling.

L3 ANSWER 55 OF 106 CA COPYRIGHT 2006 ACS on STN

AN 132:219057 CA

TI Fluorescent indicators for nitric oxide based on rhodamine chromophore

AU Kojima, Hirotatsu; Hirotani, Miki; Urano, Yasuteru; Kikuchi, Kazuya; Higuchi, Tsunehiko; Nagano, Tetsuo

CS Graduate School of Pharmaceutical Sciences, The University of Tokyo, Tokyo, 113-0033, Japan

SO Tetrahedron Letters (2000), 41(1), 69-72

AB We have developed a novel fluorescent indicator for NO, DAR-M, which features long-wavelength excitation, high photostability and no pH dependency over a wide pH range.

L3 ANSWER 73 OF 106 CA COPYRIGHT 2006 ACS on STN

AN 129:48837 CA

TI Detection of nitric oxide and nitrite by using a Rhodamine-type fluorescent indicator

AU Rieth, Thomas; Sasamoto, Kazumi

CS Dojindo Laboratories, Kumamoto, 861-2202, Japan

SO Analytical Communications (1998), 35(6), 195-197

AB A unique, colorless Rhodamine deriv., Rhodamine B hydrazide (RBH), was shown to react with nitrite in acidic pH to produce an absorption at 561 nm. The sensitivity of RBH toward nitrite was higher than conventional methods. RBH also gives a fluorescence at 581 nm when incubated with an NO donor at neutral pH, the reaction was enhanced by using an NO scavenger, Carboxy-PTIO.

=> log y

STN INTERNATIONAL LOGOFF AT 11:35:06 ON 28 NOV 2006